Gender-Role and Its Influence on the Perceived Efficacy of a Preemptive Dose of the N-Methyl-D-Aspartate (NMDA) Antagonist Ketamine on Postoperative Analgesia in Females Undergoing Oral Maxillofacial Surgery

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Significance

- Poor perioperative pain management may result in
  - Longer hospitalization
  - Poor functional recovery
  - Increase morbidity and mortality
  - (Gottschalk & Ochroch, 2003)
- Women generally report more pain than men
  - (Unruh, 1996; Riley, Robinson, & Wise,1998)
- Gender Socialization vs hormonal influences?
- Majority studies focus on hormonal differences
  - Women report more pain during the luteal phase
  - (Conroy et al., 2003; Bentley et al., 2002)

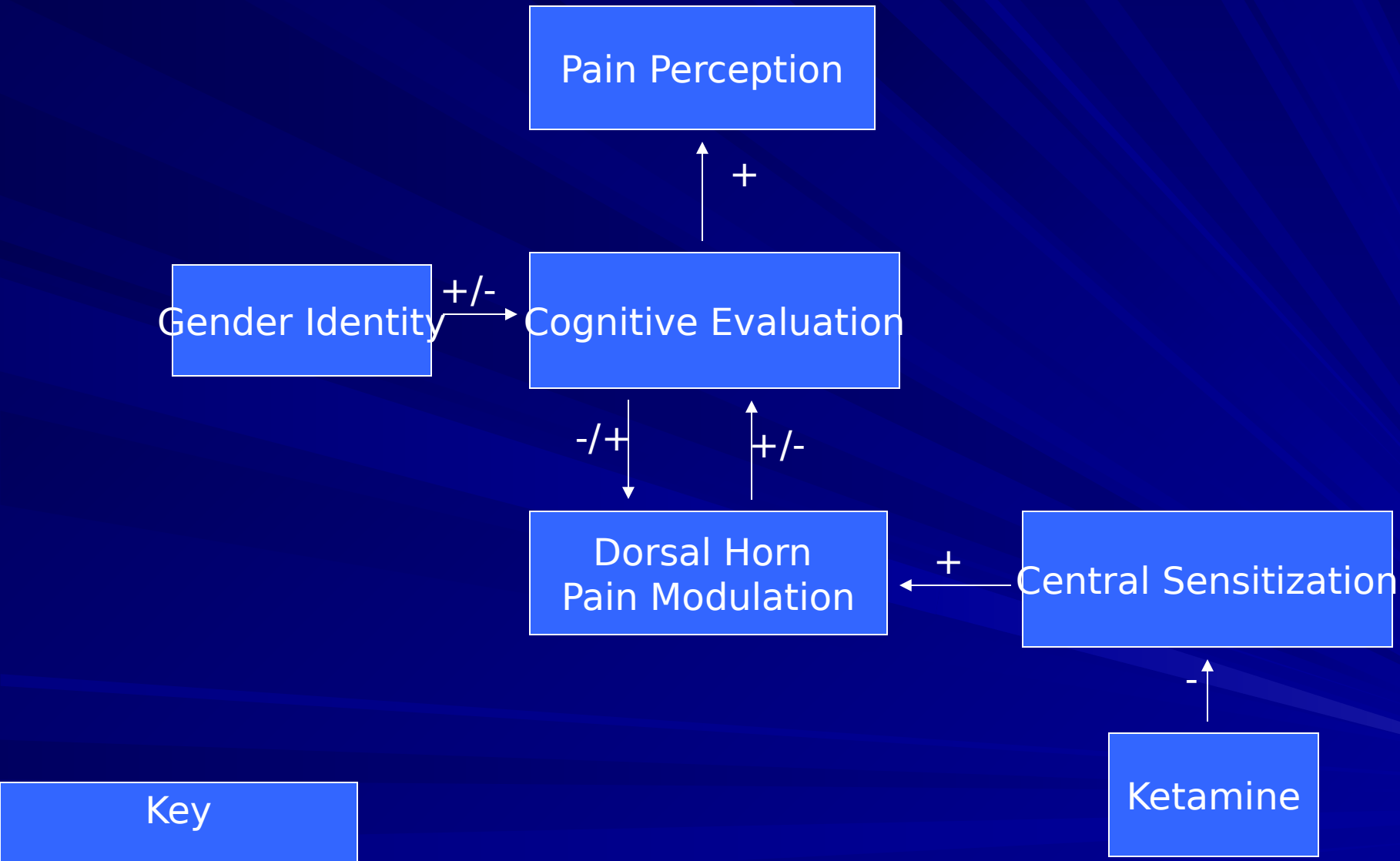
Statement of the Problem

- It is not known if gender-role perception influences the efficacy of preemptive ketamine administration in reducing postoperative pain in females.

Aims

- Examine the efficacy of a preemptive dose of ketamine on postoperative analgesia in females undergoing Oral Maxillofacial Surgery.
- Determine if gender-role perception effects the perceived efficacy of a preemptive dose of ketamine on postoperative analgesia in females undergoing Oral Maxillofacial Surgery.

Gate Control Theory



Literature Review

- Rationale for preemptive ketamine
  - Woolf and Chong, 1993
- Rationale for low dose ketamine IV
  - Murray et al., 1987; Roytblat et al., 1993; Tverskoy et al., 1994; Fu et al., 1997
- Rationale for gender and sex
  - Conroy et al., 2003; Bentley et al., 2002

Research Questions

- Does gender-role perception influence the efficacy of preemptive ketamine administration in reducing postoperative pain in females?
- Does a preemptive dose of ketamine decrease postoperative pain in females undergoing oral maxillofacial surgery?

Research Design

- 2 X 2 Factorial Design with repeated measures
  - Factor #1 Ketamine vs control group
  - Factor #2 High vs low masculinity
- Experimental (between subjects)
  - Random assignment
  - Control group
  - Experimental group
  - Intervention group

Two-Way ANOVA (2X2 Factorial Design)

	Factor 1: Preemptive Ketamine		
		Experimental Group	Control Group
Factor 2 Masculinity	High		
	Low		

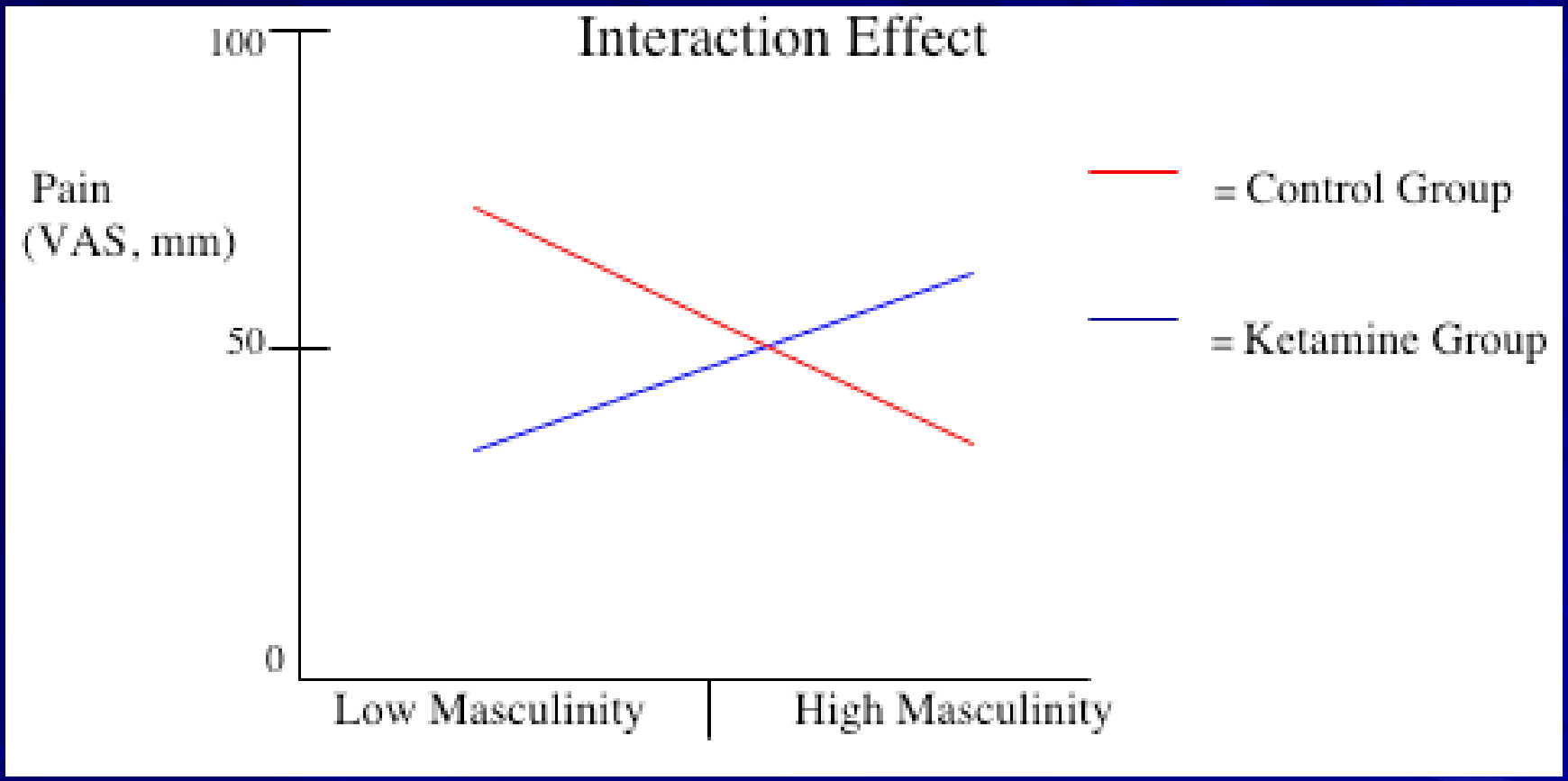
Interaction

When the levels of one factor behave differently at the different levels of the second factor

		Factor 1: Preemptive Ketamine	
		Experimental Group	Control Group
Factor 2 Masculinity	High	↑ Pain	↓ Pain
	Low	↓ Pain	↑ Pain

Main Effects

- Effects of each factor alone, collapsing across the levels of the other factor
  - 1. Does a preemptive dose of ketamine effect postoperative pain in females undergoing oral maxillofacial surgery?
  - 2. Does masculinity level effect postoperative pain in females undergoing oral maxillofacial surgery?


Interaction Effect
100
50
0
Pain
(VAS, mm)
= Control Group
= Ketamine Group
Low Masculinity
High Masculinity

Power Analysis

- Significance criterion ά = 0.05
- Large effect size = 0.75
  - (Conroy et al., 2003; Bentley et al., 2002)
- Sample size = 64
- Power = 0.839

Instruments

- VAS Scale - Pain Perception
- BEM Sex-Role Inventory (BSRI)
  - Measure high or low masculinity
  - 20 words
  - 1-7 scale
  - Score above 4.55 is high masculinity
  - Score of 4.55 or below is low masculinity

Reliability and Validity

- VAS –
  - Criterion-related validity as a numerical rating scale for pain r = 0.62 - 0.92 (Ahles et al., 1984; Downie et al., 1978; Seymore, 1982)
  - Test-retest evaluation of reliability yielded a correlation coefficient of 0.32 - 0.99 (Seymore, 1982; Revill et al., 1976; Folstein & Luria, 1973)

Reliability and Validity

- BEM sex-role inventory (BSRI) - masculinity
  - Test-retest reliability product moment correlation r = .90
  - Criterion-related validity – BSRI is moderately correlated with the California Psychological Inventory correlation coefficient of 0.42
  - All words used to assess masculinity have remained valid (Holt and Ellis 1998)

Data Collection

- BEM sex-role inventory test administrated preoperatively
- A trained PACU nurse will collect
  - VAS score 30 minutes after patients arrival
  - VAS score at time of first pain medication request
  - VAS score at discharge from PACU
  - Time to first pain medication request
- Total dose of morphine or equivalent in mg/kg collected by investigators

Questions

Operational Definitions (HIDDEN SLIDE)

- Pain Perception:
  - 100 mm Visual Analogue Scale (VAS) with zero mm being no pain and 100 mm being maximal pain
  - IV morphine (or equivalent) in mg/kg given in the PACU
  - Time to request for first analgesic medication